

IN THE CLAIMS:

1. (Currently amended) An information processing apparatus segmenting a sheet into a plurality of areas and arranging ~~controlling~~ a print data layout in each of the plurality of areas, comprising:

print setting means for setting print settings;

input means for inputting a plurality of sets of data arranged on the plurality of areas from an application, each set of data being including print data corresponding to [[of]] front and back surfaces of each area;

determination means for determining whether a surface which undergoes an imposition process is to be at the front or back surface;

page order setting means for setting the page-layout order on the surface of one sheet determined by the determination means such that, in a case where the sheet is cut into the plurality of areas, each set of data is arranged on ~~corresponds to~~ the front and back surfaces of each cut area; and

imposition process means for performing the imposition process, on the basis of the page-layout order set by said page order setting means, by separately collecting page data for the front and back surfaces of the sheet and respectively laying out the print image data on the front and back surfaces of the sheet[[,]]

wherein said page order setting means sets page-layout orders such that the page layout of the front and back surfaces has a mirror symmetry.

2. (Previously Presented) The apparatus according to claim 1, wherein said determination means automatically determines the front or back surface by either a format in which all the data of back surfaces is outputted after all the data of front surfaces is outputted, or a format in which data of the front or back surface of a set is alternately outputted, which is designated from the application in 2 sided printing.

3. (Previously presented) The apparatus according to claim 1, wherein said print setting means has designation means for allowing a user to designate processing for the front or back surface, and said determination means performs the determination on the basis of the user designation by said designation means.

4. (Previously presented) The apparatus according to claim 3, wherein said determination means automatically determines the front or back surface by communicating with the application by using an extension application programming interface.

5. (Previously presented) The apparatus according to claim 1, wherein when a layout that is always uniquely determined by a specific type of sheet is to be made, and the specific type of sheet is designated, a print setting GUI is controlled so as not to make any setting that influences the layout.

6. and 7. (Canceled)

8. (Previously presented) The apparatus according to claim 1, wherein said print setting means can designate that part of a sheet which has already been used, and

said page order setting means makes a setting to set only remaining areas as layout targets on the basis of information of the used area designated by said print setting means.

9. (Previously presented) The apparatus according to claim 8, wherein said page order setting means sets remaining areas of a first sheet as layout targets by using information of a used area designated by said print setting means, and sets all areas of a second and subsequent sheets as layout targets.

10. (Previously presented) The apparatus according to claim 1, further comprising spool means for, before generating print data to be transmitted to a printer, temporarily storing the print data in an intermediate code form of a data form different from a data form of the print data, despool means for generating the print data to be transmitted to the printer from the data temporarily stored in the intermediate code form, and means for generating a control command to the printer.

11. (Currently amended) A print control method for an information processing apparatus segmenting a sheet into a plurality of areas and arranging controlling a print data layout in each of the plurality of areas, comprising:

a print setting step of setting print settings;

an input step of inputting a plurality of sets of data arranged on the plurality of areas from an application, each set of data being including print data corresponding to [[of]] front and back surfaces of each area;

a determination step of determining whether a surface which undergoes an imposition process is to be at the front or back surface;

a page order setting step of setting a page-layout order on the surface of one sheet determined by the determination step such that, in a case where the sheet is cut into the plurality of areas, each set of data is arranged on corresponds to the front and back surfaces of each cut area; and

an imposition process step of performing the imposition process, on the basis of the page-layout order set in the page setting step, by separately collecting page data for the front and back surfaces of the sheet and respectively layout out the print image data on the front and back surfaces of the sheet[[,]]

~~wherein said page order setting step sets page-layout orders such that a page layout of the front and back surfaces has a mirror symmetry.~~

12. (Previously presented) The method according to claim 11, wherein in the determination step, the front or back surface is automatically determined by either a format in which all the data of back surfaces is outputted after all the data of front surfaces is outputted, or a format in which data of the front or back surface of a set is alternately outputted, which is designated from the application in 2 sided printing.

13. (Previously presented) The method according to claim 11, wherein the print setting step has a designation step of allowing a user to designate processing for the front or back surface, and in the determination step, the determination is performed on the basis of the user designation in the designation step.

14. (Previously presented) The method according to claim 13, wherein in the determination step, the front or back surface is automatically determined by communicating with the application by using an extension application programming interface.

15. (Previously presented) The method according to claim 11, wherein when a layout that is always uniquely determined by a specific type of sheet is to be made, and the specific type of sheet is designated, a print setting GUI is controlled so as not to make any setting that influences the layout.

16. and 17. (Canceled)

18. (Previously presented) The method according to claim 11, wherein in the print setting step, it can be designated that part of a sheet has already been used, and

in the page order setting step, a setting is made to set only remaining areas as layout targets on the basis of information of the used area designated in the print setting step.

19. (Previously presented) The method according to claim 18, wherein in the page order setting step, remaining areas of a first sheet are set as layout targets by using information of a used area designated in the print setting step, and all areas of a second and subsequent sheets are set as layout targets.

20. (Previously presented) The method according to claim 11, further comprising a spool step of, before generating print data to be transmitted to a printer, temporarily storing the print data in an intermediate code form of a data form different from a data form of the print data, a despool step of generating the print data to be transmitted to the printer from the data temporarily stored in the intermediate code form, and a step of generating a control command to the printer.

21. (Currently amended) A computer readable storage medium on which is stored a computer-executable program for a print control method for an information processing apparatus segmenting a sheet into a plurality of areas and arranging ~~controlling a print data layout~~ in each of the plurality of areas, the program including:

a module for generating a control command to a printer;

a print setting module for setting print settings;

an input module for inputting a plurality of sets of data arranged on the plurality of areas from an application, each set of data being including print data corresponding to [[of]] front and back surfaces of each area;

a determination module for determining whether a surface which undergoes an imposition process is to be at the front or back surface;

a page order setting module for setting a print-layout order on the surface of one sheet determined by the determination module such that, in a case where the sheet is cut into the plurality of areas, each set of data is arranged on corresponds to the front and back surfaces of each cut area; and

an imposition process module for performing the imposition process, on the basis of the page-layout order set by said page order setting module, by separately collecting page data for the front and back surfaces of the sheet and respectively laying out the print image data on the front and back surfaces of the sheet[[,.]]

wherein said page order setting means sets page-layout orders such that a page layout of the front and back has a mirror-symmetry.

22. (Previously presented) The medium according to claim 21, wherein the determination module automatically determines the front or back surface by either a format in which all the data of back surfaces is outputted after all the data of front surfaces is outputted, or a format in which data of the front or back surface of a set is alternately outputted, which is designated from the application in 2 sided printing.

23. (Previously presented) The medium according to claim 21, wherein the print setting module has a designation module for allowing a user to designate processing for the front or back surface, and

the determination module performs the determination on the basis of the user designation by the designation module.

24. (Previously presented) The medium according to claim 23, wherein the determination module automatically determines the front or back surface by communicating with the application by using an extension application programming interface.

25. (Previously presented) The medium according to claim 21, wherein when a layout that is always uniquely determined by a specific type of sheet is to be made, and the specific type of sheet is designated, a print setting GUI is controlled so as not to make any setting that influences the layout.

26. and 27. (Canceled)

28. (Previously presented) The medium according to claim 21, wherein the print setting module can designate that part of a sheet has already been used, and



the page order setting module makes a setting to set only remaining areas as layout targets on the basis of information of the used area designated by the print setting module.

29. (Previously presented) The medium according to claim 28, wherein the page order setting module sets remaining areas of a first sheet as layout targets by using information of a used area designated by the print setting module, and sets all areas of a second and subsequent sheets as layout targets.

30. (Previously presented) The medium according to claim 21, further comprising:

a spool module for, before generating print data to be transmitted to a printer, temporarily storing the print data in an intermediate code form of a data form different from a data form of the print data; and

a despool module for generating the print data to be transmitted to the printer from the data temporarily stored in the intermediate code form.

31. (Currently amended) A computer-executable program stored in a computer-readable storage medium, the program causing a computer to execute a print control method for an information processing apparatus segmenting a sheet into a plurality of areas and arranging controlling a print data ~~layout~~ in each of the plurality of areas, comprising:

a step of generating a control command to a printer;

a print setting step of setting print settings;

an input step of inputting a plurality of sets of data arranged on the plurality of areas from an application, each set of data being including print data corresponding to [[of]] front and back surfaces of each area;

a determination step of determining whether a surface which undergoes an imposition process is to be at the front or back surface;

a page order setting step of setting the page-layout order on the surface of one sheet determined by the determination step such that, in a case where the sheet is cut into the plurality of areas, each set of data is arranged on correspond to the front and back surfaces of each cut area; and

an imposition process step of performing the imposition process, on the basis of the page-layout order set in the page order setting step, by separately collecting page data for the front and back surfaces of the sheet and respectively laying out the print image data on the front and back surfaces of the sheet[[,]]

~~wherein said page order setting step sets page-layout orders such that the page layout of the front and back surfaces has a mirror symmetry.~~

32. (Previously presented) The program according to claim 31, wherein in the determination step, the front or back surface is automatically determined by either a format in which all the data of back surfaces is outputted after all the data of front surfaces is outputted, or a format in which data of the front or back surface of a set is alternately outputted, which is designated from the application in 2 sided printing.

33. (Previously presented) The program according to claim 31, wherein the print setting step has a designation step of allowing a user to designate processing for the front or back surface, and in the determination step, determination is performed on the basis of the user designation in the designation step.

34. (Previously presented) The program according to claim 33, wherein the determination step automatically determines the front or back surface by communicating with the application by using an extension application programming interface.

35. (Previously presented) The program according to claim 31, wherein when a layout that is always uniquely determined by a specific type of sheet is to be made, and the specific type of sheet is designated, a print setting GUI is controlled so as not to make any setting that influences the layout.

36. and 37. (Canceled)

38. (Previously presented) The program according to claim 31, wherein in the print setting step, it can be designated that part of a sheet has already been used, and in the page order setting step, a setting is made to set only remaining areas as layout targets on the basis of information of the used area designated in the print setting step.

39. (Previously presented) The program according to claim 38, wherein in the page order setting step, remaining areas of the first sheet are set as layout targets by using information of a used area designated in the print setting step, and all areas of the second and subsequent sheets are set as layout targets.

40. (Previously presented) The program according to claim 31, wherein the program further comprises:

a spool step of, before generating print data to be transmitted to a printer, temporarily storing the print data in an intermediate code form of a data form different from a data form of the print data, and

a despool step of generating the print data to be transmitted to the printer from the data temporarily stored in the intermediate code form.

41. (Currently amended) An information processing apparatus segmenting a surface of a sheet into a plurality of areas and arranging ~~controlling~~ a print data ~~layout~~ in each of the plurality of areas, comprising:

print setting means for setting a specified sheet, required to segment a surface of the sheet into a plurality of areas and required to assign pages to each of the segmented areas, as an output sheet;

layout order setting means for setting a layout order of pages to be imposition-processed for each of the plurality of areas obtained from segmenting a surface of the sheet;

input means for inputting drawing data of a plurality of pages;

imposition process means for performing imposition processes, based on the layout order of pages set by said layout order setting means, by separately collecting drawing data for front and back surfaces of one sheet and by respectively laying out the drawing data on the front and back surfaces of said one sheet; and

data generation means for generating print data to be printed by a printing device, from the data which is imposition-processed by said imposition process means[[,]]

wherein the layout order of pages is determined such that a page layout of the front and back surfaces has a mirror symmetry.

42. (Previously presented) The apparatus according to claim 41, wherein said imposition process means determines a sheet surface onto which each of the drawing data is to be laid out, by examining whether a mode of data output generates the front surface data and back surface data separately in order, or alternates between the front and back surface data, then collects data for each surface, and lays out the data onto the respective surfaces.

43. (Previously presented) The apparatus according to claim 41, wherein said print setting means is capable of designating an area of a sheet to be used for printing when a part of the sheet is already occupied, and

said imposition process means collects drawing data for each surface of the sheet and lays out the collected drawing data to the respective surface, having the area for printing arranged symmetrically, according to the set-up of said print setting means.

44. (Currently amended) A method for an information processing apparatus segmenting a surface of a sheet into a plurality of areas and arranging controlling a print data layout in each of the plurality of areas, comprising:

a print setting step for setting a specified sheet, required to segment a surface of the sheet into a plurality of areas and required to assign pages to each of the segmented areas, as an output sheet;

a layout order setting step for setting a layout order of pages to be imposition-processed for each of the plurality of areas obtained from segmenting a surface of the sheet;

an input step for inputting drawing data of a plurality of pages;

an imposition process step for performing imposition processes, based on the layout order of pages set by said layout order setting step, by separately collecting drawing data for front and back surfaces of one sheet and by respectively laying out the drawing data on the front and back surfaces of said one sheet; and

a data generation step for generating print data to be printed by a printing device, from the data which is imposition-processed by said imposition process step[[,]]

wherein the layout order of pages is determined such that a page layout of the front and back surfaces has a mirror symmetry.

45. (Currently amended) A computer-readable storage medium on which is stored a computer-executable program for executing a method for an information processing apparatus segmenting a surface of a sheet into a plurality of areas and arranging controlling a print data layout in each of the plurality of areas, the program comprising:

a print setting step for setting a specified sheet, required to segment a surface of the sheet into a plurality of areas and required to assign pages to each of the segmented areas, as an output sheet;

a layout order setting step for setting a layout order of pages to be imposition-processed for each of the plurality of areas obtained from segmenting a surface of the sheet;

an input step for inputting drawing data of a plurality of pages;

an imposition process step for performing imposition processes, based on the layout order of pages set by said layout order setting step, by separately collecting drawing data for front and back surfaces of one sheet and by respectively laying out the drawing data on the front and back surfaces of said one sheet; and

a data generation step for generating print data to be printed by a printing device, from the data which is imposition-processed by said imposition process step[[.]]

~~wherein the layout order of pages is determined such that a page layout of the front and back surfaces has a mirror symmetry.~~